

(19) World Intellectual Property  
Organization  
International Bureau



537886

(43) International Publication Date  
24 June 2004 (24.06.2004)

PCT

(10) International Publication Number  
**WO 2004/052190 A1**

(51) International Patent Classification<sup>7</sup>: **A61B 5/00**,  
5/02, 5/024, 5/0404, 5/0408

(21) International Application Number:  
PCT/IB2003/005805

(22) International Filing Date: 8 December 2003 (08.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
02080213.8 10 December 2002 (10.12.2002) EP

(71) Applicant (for all designated States except DE, US):  
**KONINKLIJKE PHILIPS ELECTRONICS N.V.**  
[NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven  
(NL).

(71) Applicant (for DE only): **PHILIPS INTELLECTUAL  
PROPERTY & STANDARDS GMBH** [DE/DE]; Stein-  
damm 94, 20099 Hamburg (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SCHMIDT, Ralf**

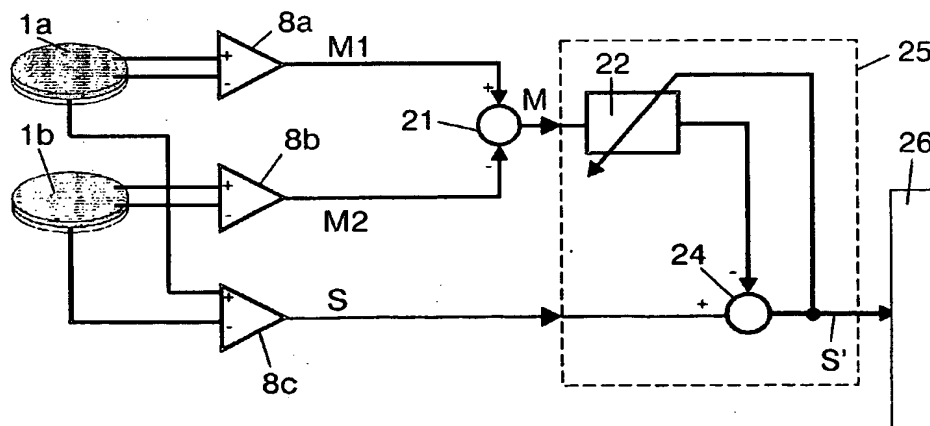
[DE/DE]; c/o Prof. Holstlaan 6, NL-5656 AA Eind-  
hoven (NL). **SUCH, Olaf** [DE/DE]; c/o Prof. Holstlaan  
6, NL-5656 AA Eindhoven (NL). **REICHINGER,**  
**Christian** [DE/DE]; c/o Prof. Holstlaan 6, NL-5656  
AA Eindhoven (NL). **PERKUHN, Michael** [DE/DE];  
c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).  
**REITER, Harald** [DE/DE]; c/o Prof. Holstlaan 6,  
NL-5656 AA Eindhoven (NL). **MONTVAY, Andras**  
[DE/DE]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven  
(NL). **LAUTER, Josef** [DE/DE]; c/o Prof. Holstlaan 6,  
NL-5656 AA Eindhoven (NL).

(74) Agent: **SCHOUTEN, Marcus, M.**; Philips Intellectual  
Property & Standards, Prof. Holstlaan 6, NL-5656 AA  
Eindhoven (NL).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR,  
CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,  
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,  
MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,  
SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,  
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: A WEARABLE DEVICE FOR BIOELECTRICAL INTERACTION WITH MOTION ARTIFACT CORRECTION MEANS



(57) Abstract: The invention relates to a wearable device arranged for enabling a bioelectrical interaction with an individual when being brought into contact with the individual's skin I, said device comprising electrodes 2 arranged to carry out said interaction by means of a first electrical signal, said electrodes comprise motion artifact detection means 4. The electrode assembly 1 comprises the electrode 2 arranged to carry out a bioelectrical interaction with the individual by means of measuring an electrical signal on the body of the individual I and/or applying an electrical signal to the body of the individual. In order to enable said bioelectrical interaction the electrode 2 is provided with an electrical cable 2a. According to the invention, the electrode 2 is arranged with a pressure sensor 4. The pressure sensor 4 is arranged to measure a normal force component of an external force applied to the electrode due to movement of the individual. Preferably the pressure sensor 4 is a force/pressure sensitive resistor or a capacitive pressure sensor. The pressure sensor is arranged to produce an electrical signal, referred to as the second signal, the magnitude of the second signal being proportional to the pressure load. The pressure sensor 4 is arranged with cables 4a, 4b for purposes of signal processing.

WO 2004/052190 A1



(84) **Designated States (regional):** ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*